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Review for Exam #2 N111

**Chapter 15**

* Seizure
  + Disturbance of electrical activity in the brain that may affect consciousness, motor activity, and sensation
* Causes of Seizures
  + Infectious diseases
    - Meningitis
    - Encephalitis
      * Cause inflammation in the brain
  + Trauma
    - Direct blows to the skull may increase intracranial pressure
    - Chemical trauma
      * presence of toxic substances
      * ingestion of poisons may cause brain injury
  + Metabolic disorders
    - Changes in fluid and electrolytes
      * Hyperglycemia
      * Hyponatremia
      * Water intoxication
        + All alter electrical impulse transmission at cellular level
  + Pediatric Disorders
    - Rapid increase in body temperature may result in febrile seizure
* Classification of Seizure and Symptoms
  + Partial
    - Simple partial
      * Olfactory, auditory, and visual hallucinations
      * Intense emotions
      * Twitching of arms and legs
    - Complex partial (psychomotor)
      * Aura (preceding)
      * Brief period of confusion or sleepiness afterward with no memory of seizure (*postical confusion*)
      * Fumbling with or attempting to remove clothing
      * No response to verbal commands
  + General
    - Absence (petit mal)
      * Lasts a few seconds
      * Seen most in children
        + Child stares into space
        + Does not respond to verbal stimulation
        + May have fluttering eyelids or jerking
      * Misdiagnosed often (especially in child) as ADD or daydreaming
  + Special Syndromes
    - Status epilepticus
      * Considered a medical emergency
      * Continuous seizure activity, which can lead to coma and death
* Anti-seizure medications
  + Used for indefinite period of time unless the person doesn’t need it anymore
* If you are concerned with respiratory depression of the anti-seizure medication just given, how often do you want to check on the patient?
  + The nurse should check the patient every 15 minutes if we think the medication may cause respiratory depression
* Anti-seizure Drugs that Potentiate GABA : Phenobarbital and Diazepam

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| Drug | Adverse Effects/Serious Adverse Effects | Etc. |
| Phenobarbital (Luminal)  Pharmacologic class : Barbiturates | * Agranulocytosis * Stevens-Johnson syndrome * Angioedema * Laryngospasm * Respiratory Depression * CNS Depression * Coma * Death * Vitamin deficiencies   (Vitamin D, folate or B₉; and B₁₂) |  |
| Diazepam (Valium)  Pharmacologic Class:  Benzodiapines | * Drowsiness * Sedation * Ataxia * Laryngospasm * Respiratory depression * Cardiovascular Collapse * Coma |  |
| Drug | Adverse Effect/ Serious Adverse Effect | Etc. |
| Enytoin (Dilantin)  Pharmacologic Class:  Hydantoin; **sodium influx- suppressing drug** | * Gingival hyperplasia (most common) | **Actions & Uses**   * Desensitizes sodium channels in CNS responsible for neuronal responsivity * Prevents the spread of disruptive electrical charges in the brain that produces seizures * Effective against most types of seizures except absence seizures * Has antidysrhythmic activity similar to that of lidocaine (Class IB) * Unlabeled use if for digitalis-induced dysrhythmias   **Administration Alerts**   * When administering IV, mix with saline only, and infuse at the maximum rate of 50 mg/min. Mixing with other medications, or dextrose solutions produces precipitate * Always prime of flush IV lines with saline before hanging phenytoin as a piggyback since traces of dextrose soln in an existing main IV can cause microscopic precipitate formation, which become emboli if infused. Use an IV filter when infusing this drug. * Phenytoin injectable is a soft-tissue irritant. Causes local tissue damage. To reduce risk, DO NOT inject IM; inject into a large vein * Avoid using hand veins to prevent serious local vasconstrictive response (purple glove syndrome) * Pregnancy Category D   **Drug-Drug Interactions**   * Oral anticoagulants * Glucocorticoids * H₂ antagonists   **Lab Tests**   * May increase serum levels of glucose. (If Dilantin is given to a diabetic patient, we should increase their insulin!) |
| Valproic acid (Depakene, Depakote) | * Diplopia * Blurred vision * Prolonged bleeding * Agranulocytosis * Aplastic-anemias * Bullous * Exfoliative dermatitis * Stevens-Johnson syndrome * Toxic epidermal necrolysis * Bone marrow depression * Acute liver failure * Pancreatitis * Heart block * Respiratory depression |  |
| Ethosuximide (Zarontin)  Pharmacologic Class:  Succinimide  **(Delays calcium influx into neurons)** |  | **Actions & Uses**   * Drug of choice for absence (petit mal) seizures * Depresses activity of neurons in the motor cortex by elevating neuronal threshold * Ineffective against psychomotor or tonic-clonic seizures * May be given in combination with other medications that better treat these conditions * Available in tablet and flavored-syrup formulations   **Contraindications**   * Safety in children younger than 3 years of age has not been established. |
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* Professor Mahmood had said to read the whole page of 178 ! I’ll write it out to the people who don’t have a book, since there’s 4 questions on this page! ☺
* Interventions and (Rationales)
  + Continue to monitor height, weight, and development level in pediatric patients. In the school-age child, asses school performance. (Adverse effects of anti-seizure drugs or unresolved seizures may hinder normal growth and development)
  + Continue to monitor drug levels, CBC, renal and hepatic function, and pancreatic enzymes. (antiseizure drugs require periodic drugs levels to correlate the level with symptoms. Antiseizure drugs may cause hepatotoxcity and valproic acid may cause pancreatitis as an adverse effect.)
  + Assess for changes in the level of consciousness, disorientation or confusion, or agitation. (Neurologic changes may indicate overmedication or adverse drug effects.)
  + Assess for changes in visual acuity, blurred vision, loss of peripheral vision, seeing rainbow halos around lights, acute eye pain, or any of these symptoms accompanied by nausea and vomiting and report immediately. (increased inatropic pressure in patients with narrow-angle glaucoma may occur in patients taking benzodiazepines.)
  + Assess for bruising or bleeding, or signs of infection. (Antiseizure drugs may cause blood dyscrasias and increased chances of bleeding or infection.)
  + Monitor affect and emotional status. (Antiseizure drugs may increase the risk of mental depression and suicide. Concurrent use of alcohol or other CNS depressants increase the affects and the risk.)
  + Assess the condition of gums and oral hygiene measures. (Hydantoins and phenytoin-like drugs may cause gingival hyperplasia, increasing the risk of oral infections.)
  + Encourage appropriate lifestyle and dietary changes: increase intake of vitamin K, D, folic acid, Vitamin B-rich foods; lowered caffeine intake including OTC medications that contain caffeine; and limited or no alcohol intake. (Caffeine and nicotine may decrease the effectiveness of the benzodiazepines. Barbiturates, drugs with GABA action, hydantoins, and phenytoin-like drugs affect the absorption of vitamin K, D, folic acid, and B-vitamins. Alcohol and other CNS depressants may increase the adverse effects of the antiseizure drugs.)
  + Monitor children for paradoxical response to barbiturates. (Hyperactivity may occur.)
  + Assess women of child-bearing age for possibility of pregnancy, plans for pregnancy, breast-feeding, and contraceptive use. (antiseizure medications are category D in pregnancy. Barbiturates decrease the effectiveness of oral contraceptives and additional forms of contraception should be used.)
  + Avoid abrupt discontinuation of therapy. (Status epilepticus may occur with abrupt discontinuation.)
  + Asses home storage of medications and identify risks for corrective action. (Overdosage may occur if the patient takes additional doses when drowsy or disoriented from medication effects. Overdosage with barbiturates may prove fatal.)
  + Provide emotional support and appropriate referrals as needed. (Treatment with antiseizure drugs may require using combinations of drugs and seizure activity may diminish but may not be resolved. Social isolation and low self-esteem may occur with continued seizure disorder.)
  + Patient and Family Education (I’m pretty sure you just have to read over that, the interventions and rationales are more important. I also highlighted the one I have highlighted in my book because he went over those so I’m guessing those are the MOST important.)